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EX PARTE PRESENTATION

September 4, 1998

Magalie Roman Salas
Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

RECEIVED

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: CC Docket No. 96-128

Dear Ms. Salas:

Sprint Corporation hereby submits the attached Declaration of Stanley M. Besen and R. Craig Romaine for inclusion in the record in the above-captioned proceeding. Their analysis establishes that:

- A caller-pays system is likely to be more efficient than a carrier-pays system;
- The economics experts for the pay telephone operators implicitly assume that both coin and coinless pay telephone calls are paid for by callers;
- Inefficiencies would be produced by having carriers pay for coinless calls;
- The possibility that carriers could surcharge callers for coinless calls does not remedy the defects of a carrier-pays system, especially if the terms of a surcharge policy are not explicit;
- Incentives are created for pay telephone operators to inflate the coin rate in a carrier-pays system when the rate for coinless calls is based on the coin rate;
- Prices charged by some pay telephone operators are likely to contain elements of monopoly profits even in the absence of entry barriers;

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- Advocating a caller-pays system does not involve acceptance of the view that the pay telephone market is competitive; and

- The failure of carriers to block calls for which they must pay compensation to pay telephone providers does not provide evidence either that the compensation is reasonable or that the pay telephone market is competitive.

An original and one copy of this letter are being filed.

Sincerely,

Richard Juhnke

c: Chairman William Kennard
Commissioner Susan Ness
Commissioner Gloria Tristani
Commissioner Michael Powell
Commissioner Harold Furchtgott-Roth
Kathryn Brown
Larry Strickling
Glenn Reynolds
Greg Lipscomb
Craig Stroup
Don Stockdale

DECLARATION OF STANLEY M. BESEN AND R. CRAIG ROMAINE*

Introduction

The Federal Communications Commission ("Commission") has proposed a methodology for compensating pay telephone operators for certain calls that are now free to the caller, so-called "coinless calls." The two principal features of the Commission's proposal are (i) that compensation will be paid by the telephone carrier that completes a coinless call and (ii) that the rate of compensation will be based on the price of a coin call.

In support of the Commission's proposal, pay telephone providers have presented a number of economic analyses describing how a competitive market for pay telephone calling would function.[1] In particular, these analyses have been employed to justify basing the compensation rate for coinless calls on the price of coin calls. However, these analyses, and the Commission's proposal that they support, have three major defects.

First, all of the analyses of the pay telephone market implicitly assume that payments for coinless calls are made by *callers* but nonetheless draw inferences about the payments that should be imposed on *carriers*. This approach incorrectly assumes that the only relevant issue is the determination of the price of coinless calls, not who pays that price. However, if, in fact, callers do not pay

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* Copies of the authors' résumés are attached (as Appendix A).

[1] Citations to these analyses are provided below.

for many coinless calls, or if they are unaware of the price they will pay, the analyses will inaccurately describe how the market for pay telephone calls will actually operate under the Commission's proposal. In particular, the claimed efficiencies for basing the coinless call rate on the coin rate will not be realized even if the price of coinless calls is the same as that which would prevail in a putatively competitive pay telephone market.

Second, the assumption in the economic analyses that the coin rate for pay telephone calls is competitively determined is open to challenge. This is an important issue because the Commission's approach uses the coin rate as the starting point for the calculation of the rate for coinless calls. However, the fact that there is competition among pay telephone providers does not guarantee that coin rates are competitive. It is likely that the owners of some locations at which pay telephones are placed have significant market power in setting the rental fee for pay telephones placed at their sites, and the rate for coin calls at those locations will reflect that power. Because the Commission's methodology for setting compensation for coinless calls does not avoid this "locational monopoly" problem, the use of the coin rate to determine the coinless rate is likely to result in a coinless rate that exceeds the competitive level.

Third, the combination of using the local coin rate as the starting point *and* imposing the rate for coinless calls on carriers rather than callers results in incentives for pay telephone operators to increase the coin rate in order to increase the revenues they receive from carriers for coinless calls. This provides another reason why the failure to consider who actually pays the coinless rate

leads to incorrect conclusions about the advantages of the Commission's approach.[2]

Below we review the economics of the pay telephone market in the context of the Commission's proposal. Specifically, we establish the following:

- A caller-pays system is likely to be more efficient than a carrier-pays system;
- The economics experts for the pay telephone operators implicitly assume that both coin and coinless pay telephone calls are paid for by callers;
- Inefficiencies would be produced by having carriers pay for coinless calls;
- The possibility that carriers could surcharge callers for coinless calls does not remedy the defects of a carrier-pays system, especially if the terms of a surcharge policy are not explicit;
- Incentives are created for pay telephone operators to inflate the coin rate in a carrier-pays system when the rate for coinless calls is based on the coin rate;
- Prices charged by some pay telephone operators are likely to contain elements of monopoly profits even in the absence of entry barriers;
- Advocating a caller-pays system does not involve acceptance of the view that the pay telephone market is competitive; and
- The failure of carriers to block calls for which they must pay compensation to pay telephone providers does not indicate either that the compensation is reasonable or that the pay telephone market is competitive.

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[2] An additional issue raised in this proceeding is whether the Commission has correctly accounted for the cost difference between coin and coinless calls. We do not address this issue.

The Economics of Pay Telephone Calling

A basic principle of economic efficiency is that transactions should take place if their benefits are greater than their costs. In a telephone network, benefits can accrue to one or the other, or both, parties to a call. Likewise, one or the other, or both, parties to a call can be charged a price to recover the costs of the call.[3] Efficiency requires that a call should be made so long as the total benefits of the call to *both* parties exceed the *total* cost of the call. However, since the calling party decides whether to initiate a call, a call will be made only when the benefit to the *calling* party exceeds the cost to the *calling* party.

This leads to two types of inefficiencies. First, some calls will be made when the benefit to the calling party exceeds the cost to the calling party but the *total* benefits are less than the *total* costs.[4] Second, some calls will *not* be made when the benefit to the calling party is less than the cost to the calling party but the total benefits exceed the total costs.[5] Any pricing mechanism for pay telephone calls should take into account its likely effect on these two types of calls.

In applying this paradigm to calls made from pay telephones, the costs and benefits to the caller and the called party should be measured relative to the

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[3] For purposes of this discussion, we ignore the process of price determination and simply assume that prices are sufficient to cover costs.

[4] An example might be a telemarketing call that is made during the dinner hour.

[5] This explains why in some cases, e.g., 800 or collect calls, the called party is willing to pay for a portion of the cost of the call.

next best alternative. For many, if not most, pay telephone calls, the best alternative is making the call from another location at another time. For example, callers can anticipate the need to make calls and place them prior to leaving their offices or residences. Alternatively, they can defer making calls until they return to their homes or offices. In either case, they choose to use a pay telephone when the value of the convenience it affords exceeds the charge imposed on them for doing so.

If a pay telephone call is made because it provides convenience to the caller – and would otherwise be made at another time and place – the value of using the pay telephone accrues entirely to the caller. If the recipient of a long-distance call, or a merchant with an 800 number, would receive the call in any event, no additional value accrues if the call is placed through a pay telephone rather than from a residence or business telephone at a different time.

In these circumstances, callers that face the prices imposed by pay telephone operators will use a pay telephone whenever the price of doing so is less than the value of the convenience afforded, and they will choose which pay telephone to use on the basis of the prices charged. However, if they do not face the price of a call, they will make some pay telephone calls even when the value of the convenience is less than the price.

Caller-Pays versus Carrier-Pays

Using the framework just described, it is easy to see why a caller-pays plan is likely to be more efficient than a carrier-pays plan for pay telephone calls.

If the carrier pays, the cost to the caller of using the pay telephone as opposed to making the call at another location is zero.[6] This significantly raises the probability that inefficient calls will be made. Because the price of convenience is zero, the caller has no incentive either to alter the timing of the call or to search for a less expensive pay telephone. Thus, calls will tend to be made even when the total benefits are less than the total costs. This is, of course, a variant of the well known "moral hazard" problem that arises when an economic agent does not face the true cost of his actions and, thus, has an incentive to purchase more of a good or service than economic efficiency demands.[7]

In contrast, under a caller-pays plan, the party that benefits from the convenience is also the party that faces the entire cost of providing that convenience. If the called party places little or no value on the call being made from a pay telephone rather than from another telephone at another time, it is unlikely that efficient pay telephone calls will *not* be made.

If callers pay, they will make pay telephone calls only when the price of those calls is less than the value of their convenience. We explain below why the Commission's proposal gives pay telephone operators an incentive to artificially inflate coin rates in order to increase the price of coinless calls. However, even if the price of coin calls is not artificially inflated, so that the prices of pay telephone calls are set "correctly," i.e., at competitive levels, carrier-pays introduces an

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[6] In the next section, we discuss the feasibility and effect of having the carrier initially pay for the call but then surcharging the caller.

[7] A familiar example occurs when individuals purchase medical care that they value at less than its cost because all, or a very large portion, of the cost is covered by insurance.

inefficiency. This is because callers are induced to make coinless telephone calls even where the value of the convenience of doing so is less than the competitive price.[8] In sum, a carrier-pays plan is likely to result in significantly more inefficient calling compared to a caller-pays plan.

Analyses by Other Economists Implicitly Endorse the Caller-Pays Plan

The economists for the pay telephone operators have advanced analyses in support of the proposition that a market-based rate is more efficient than a cost-based rate. However, when they describe how the pay telephone market will function, they are describing how the market will work *assuming the caller pays*. For example, Haring and Rohlfs observe that:

> ...*callers* usually possess a large number of effective substitute alternatives to a particular payphone. ...[A] traveler can use a wireline phone either before leaving or after arriving at his/her final destination. ...*Given the ability of callers to alter their behavior*, the supply of physical location sites should thus not properly be regarded as a serious competitive barrier.[9]

Similarly, Becker notes that:

> If...margins earned on local calls were higher than margins earned for dial-around service, then firms would find it profitable to reduce slightly the price of local coin calls and increase slightly the price of access for dial-around calls. This would attract

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[8] In this case, they make pay telephone calls so long as the value of the convenience of doing so exceeds zero.

[9] Declaration of John Haring and Jeffrey H. Rohlfs, Exhibit 1 to Comments of the American Public Communications Council In the Matter of Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996, CC Docket No. 96-128, July 13, 1998, p. 6, italics added.

> *consumers* from rival providers' payphone services and induce *consumers* to increase their use of pay phones for local coin calls, thus displacing the lower margin dial-around calls.[10]

Finally, Kahn notes that:

> It may be useful to remind ourselves of the economic purpose of prices reflecting and incorporating avoidable costs. It is to require *buyers* to decide whether the incremental costs to society of their demanding more of the service in question...are equaled or exceeded by the satisfaction they derive from those purchases. This logic extends to capital costs as well as operating costs...imposing those capital costs on *users* serves the familiar purpose of economic efficiency, requiring them to weigh against the additional benefits they receive for placing those calls the cost that society will actually incur maintaining and expanding that capacity.[11]

In each of these quotations, it is clear that the analysis proceeds on the assumption that the costs of providing pay telephone service are being borne by the caller, who alone can choose whether those costs are greater or less than the additional benefits that the service provides. Otherwise, one cannot explain how callers would "alter their behavior," or "increase their use," or "weigh" the

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[10] Declaration of Gary Becker, Attachment to Comments on Remand Issues of RBOC GTE/SNET Payphone Coalition In the Matter of Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996, CC Docket No. 96-128, July 13, 1998, p. 9, italics added.

[11] Declaration of Alfred E. Kahn, Attachment to Comments on Remand Issues of RBOC GTE/SNET Payphone Coalition In the Matter of Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996, CC Docket No. 96-128, July 13, 1998, p. 11, italics added. Similarly, the Coalition's references to "the existence of another payphone nearby, the caller's ability to defer the call, or the availability of other substitutes for the payphone" (Reply Comments on Remand Issues of RBOC/GTE/SNET Payphone Coalition in the Matter of Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996, CC Docket 96-128, July 27, 1998, p. 7) and the Coalition's contention that "it is facially implausible...to suggest that payphone users...will not respond to a price increase by one provider by seeking an alternative source of

costs and benefits of pay telephone usage in response to these prices. In short, the benefits ascribed to the prices being charged do not accrue if the prices are in fact not charged to the persons doing the "weighing."[12]

The Feasibility of Surcharging

Initially imposing the cost of using a pay telephone on the carrier does not necessarily mean that the caller will not ultimately face that cost. The inefficiency associated with a caller-pays plan, as described above, would be avoided if callers could be "surcharged" by the carrier or the called party when they made a pay telephone call and if they took that surcharge into account at the time they placed the call. That circumstance would be economically equivalent to a caller-pays plan.

However, these conditions are unlikely to be met. To begin with, in order for surcharges to be imposed, the pay telephone operator would have to provide information to the interexchange carrier indicating that a particular call originated from a particular pay telephone. This is required for the carrier to pass the

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supply" (Coalition Reply Comments, p. 9) clearly contemplate situations in which the caller faces the price charged for the use of a pay telephone.

[12] Similar statements appear in the filings of the independent pay telephone operators. For example, in Reply Comments of the American Public Communications Council In the Matter of Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996, CC Docket No. 96-128, July 27, 1998 (p. v), it is noted that "payphone *customers* are becoming fully educated about any variations in the coin rates at the payphones they encounter on a routine basis and make their calling plans accordingly" (italics added) and (p. 11) that customers "...can and do shop around for the best local coin rate" (italics added).

charge imposed by that pay telephone operator on to the caller who made the call.[13]

Imposing the economically correct surcharge becomes even more difficult if, as the Commission has previously contemplated, the rate that carriers must pay varies from one pay telephone to another, depending on the local coin rate. In that case, a carrier would have to know not only that a call originates from a pay telephone but also the rate that is being imposed for calls from that particular pay telephone.[14] We understand that, in the past, the Commission has refused to require operators to provide carriers with real-time information about the rates charged for using each of their telephones and, indeed, has allowed operators to provide this information up to a year after a call has been placed. Thus, carriers cannot realistically impose surcharges that reflect the amounts that operators charge for particular coinless calls. The lack of information would force carriers to impose a surcharge that reflects the *average* charge imposed on them, which would not convey the information required for callers to make correct economic choices.

Even where surcharges are imposed, some callers may be unaware of that fact at the time they make a coinless call. In such cases, callers may

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[13] We understand that the FCC's November 8, 1996 Order on Reconsideration required that all pay telephone calls be "tagged" with information digits that are unique to pay telephones, so that carriers would have real-time knowledge that a particular call originated from a pay telephone. We also understand, however, that this requirement has been waived, temporarily in some areas and permanently in others. To the extent that these waivers remain in effect, it is impossible for carriers to surcharge on all calls from pay telephones.

[14] Carriers would also have to develop the capability to impose different surcharges for calls from different pay telephones.

erroneously, and inefficiently, make the coinless call although they would not have done so had they been aware of the surcharge. By contrast, if the caller must pay to initiate such calls at the time they are made, such errors will not occur.

Moreover, for certain types of calls – particularly some 800 calls – imposing surcharges may not be feasible.[15] Merchants might, in principle, add the cost of using the pay telephone to the price of the order, but they cannot do so for calls that do not result in orders. In addition, even when merchandise is ordered, a merchant would have to know that the call originated from a pay telephone at the time the order is received, or very shortly thereafter, so that the charge for using the pay telephone could be included in a charge to a credit card or in the C.O.D. price. Finally, the consumer would have to be aware of the amount of the charge, which might vary according to which pay telephone is used, at the time the 800 call is placed. Otherwise, the caller could not effectively weigh the cost of using the pay telephone against the value of the convenience of making the call from that particular location.

For other types of 800 calls, the called party cannot impose a surcharge. These are calls for which the caller and the called party have no existing business arrangement through which the surcharge could be imposed. For example, American Airlines cannot impose a charge on a caller who is inquiring

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[15] Collect calls also fall into this category. It is not feasible for the carrier to impose a surcharge on the caller, because it has no billing relationship with the caller for that call. Instead, the carrier must surcharge the called party, just as it does for 800 calls.

about the arrival time of a flight from a pay telephone. Although American Airlines may be willing to bear the cost of the long-distance segment of such a call in order to provide a service to its customers, it obtains little or no additional value if that call is placed from a pay telephone instead of from some other location. In that case, economic efficiency requires that callers incur the additional cost of making the call from a pay telephone.

The RBOC/GTE/SNET Coalition ("Coalition") claims that "callers often do bear directly the costs of payphone services, even for coinless calls – calling card callers pay a clearly defined charge on their bills; subscribers to voice mail services that use subscriber 800 numbers may also see the charge reflected on their statements."[16] The question, however, is not whether callers "often" pay or "may" see the charges for coinless calls, but whether they do so with sufficient regularity and transparency for their behavior to be affected. We understand that subscribers to 800 services do not ordinarily receive the information necessary to identify a call as having originated from a pay telephone. Sprint informs us that it is not aware of any instance in which an ordinary commercial 800 subscriber (as opposed to a carrier that uses an 800 number for access) imposes a surcharge on customers who place calls from pay telephones. If callers are not charged for such calls, or if they are unaware of the existence and amount of the charge, they will not take those charges into account in deciding whether to use a pay telephone, as is required for economic efficiency. Even if there are instances in

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[16] Coalition Reply Comments, p. 4.

which callers are surcharged, and know how much they will be surcharged, the inefficiencies that arise under a carrier-pays system when these conditions are not met must be reckoned against any inefficiencies that arise under a caller-pays system when callers cannot use a pay telephone because they do not have the needed coins.[17]

Use of the Local Coin Price to Determine the Coinless Call Price

The Coalition claims that "because point-of-sale competition for local coin callers will constrain local coin prices, competition in the local coin market will constrain the default per-call compensation rate."[18] There are two problems with this claim under carrier-pays. First, if the coinless call compensation rate is tied to the local coin prices *and* the carrier rather than the caller pays this rate, pay telephone operators have an incentive to increase the price of local coin call prices in order to raise the compensation they receive from carriers. Second, even if the price of coinless calls is set efficiently under this carrier-pays system, price signals to callers will still be inadequate if surcharges are not imposed when callers use pay telephones rather than the alternatives. That is, the question is not only whether pay telephone providers are adequately compensated but whether consumers are driven to use pay telephones when their convenience value exceeds the cost to society of providing that convenience. Under carrier-

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[17] There are, of course, the additional inefficiencies of a carrier-pays system that result from the need for interexchange carriers to distinguish between pay telephone and other calls if they choose to impose surcharges on pay telephone callers.

[18] Coalition Reply Comments, p. 28.

pays without surcharging, there may well be too many pay telephones and too many pay telephone calls in comparison to the economically efficient amounts. The latter issue has been discussed above. Below we consider the effect of the FCC's proposal on the incentives of pay telephone operators in setting the rates for coin calls.

Pay Telephone Operator Incentives to Raise Coin Call Rates

Suppose that a pay telephone operator chooses a price for coin calls that maximizes profits from those calls, taking into account the competition it faces. If the operator charges either a higher or lower price, profits from providing coin calls decline.

The number of coinless calls made at a pay telephone, and hence the amount of revenue collected by the owners of that telephone, are determined by the behavior of callers. In making the decision about whether to use a particular telephone, a caller will compare the convenience value of doing so with the prices charged for using that and other pay telephones, if such alternatives exist.

A caller that does not have to pay will not take these alternatives into account. As a result, the number of coinless calls made at a given pay telephone can be taken by the operator as largely independent of the price charged. Now suppose that the price of coinless calls is tied to the price of coin calls. The pay telephone operator will realize that the higher the price charged for *coin* calls, the higher will be the profits earned on the coinless calls made from the operator's telephone. Starting from the price at which profits from coin calls are maximized,

the additional profits from coinless calls will exceed the reduction in profits on coin calls. The operator will thus have an incentive to raise the price of coin calls in order to increase his profits from coinless calls.[19] Indeed, if the number of coinless calls is great enough, an operator might be largely indifferent to the number of coin calls made at a given telephone because profits are so large from the charge imposed on carriers for coinless calls. Although entry may eventually reduce or eliminate the additional profits obtained by operators, it will do so only by inefficiently increasing the number of pay telephones.[20] In any event, the price of coin calls will be raised above the efficient level.

Locational Monopolies

It is not true, as the Coalition claims, that advocating a caller-pays regime is tantamount to "acceptance of the proposition that competition among payphone providers for callers will effectively constrain prices for" payphone services.[21] If locational monopolies exist, prices will reflect monopoly rents obtained by location owners even under caller-pays. However, the inefficiencies

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[19] If the demand for coinless calls were perfectly inelastic, there would, in fact, be no limit on the rates that would be charged for coin calls. However, the demand for coinless calls is unlikely to be perfectly elastic, especially at significantly higher prices. First, surcharging by the carrier would impart some elasticity to the demand for the coinless calls. Second, at higher prices carriers might engage in extensive blocking of pay telephone calls.

[20] Note that it cannot be argued that competition prevents operators from raising the price of coin calls. Because the marginal cost of calling is less than the average cost, price must exceed marginal cost. But this means that pay telephone operators face downward sloping demand curves, which in turn means that the demand for calls faced by an operator is not perfectly elastic, even if entry eliminates profits in the long run.

[21] Reply Comments on Remand Issues of RBOC/GTE/SNET Payphone Coalition In the Matter of Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996, CC Docket No. 96-128, July 27, 1998, p. 22.

of such a regime will be smaller than under carrier-pays for all of the reasons discussed earlier. That is, monopoly power will still be exercised but the market will function somewhat more efficiently. We believe that caller-pays is preferred to the Commission's plan *whether or not the market is competitive* because callers directly face the price under caller-pays while price signals are muted under carrier-pays. We also disagree with the claim of the American Public Communications Council that "changing the transaction to an up-front, cash-in-advance, deal does not affect the underlying economic structure of the market in which the transaction occurs" if by that it is meant that there is no change in either the prices charged for coinless calls or the number of such calls that are made.[22]

In some cases, competition among location providers will ensure that the site location itself will be competitively priced. Competitive pricing for site locations implies that sites will be devoted to their highest-valued use, and that the renters of those sites will pay no more than that necessary to divert the site from its next best use. However, in locations where callers cannot conveniently find alternative pay telephone locations, the location provider will likely be able to demand a commission in excess of this minimum amount.

Suppose, for example, that a particular area within an airport could be used either for a cappuccino bar or a bank of pay telephones. Suppose further that the maximum rent the airport owner could attract from a cappuccino bar operator is $100. In order to bid that space away from the cappuccino bar

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[22] American Public Communications Council Reply Comments, p. vi.

operator, a pay telephone provider would have to offer at least $101.[23] However, the value to pay telephone providers of that site may be much higher than $101, say $200, if they can charge prices in excess of the competitive price for calls.[24] Absent competition among location providers that would drive the rent down to $101, the location provider could charge as much as $200 and, indeed, competition among pay telephone operators for the site would result in a rent of $200. In any situation in which the cost to the user of locating and traveling to the nearest alternative pay telephone location is more than the amount saved in doing so, pay telephone operators will be able to charge more than the competitive price. Where this occurs, some or all of the excess profits obtained by the operator may be shifted to the site owner through competition among operators to use the particular location.

The (In)significance of the Failure of Carriers to Block Calls

The Coalition contends that the failure of carriers to block calls on which they must pay compensation to pay telephone providers is evidence that the compensation is reasonable. That claim is incorrect. Each individual carrier may be better off if it pays the charge rather than engage in blocking *if the same unreasonable charge is imposed on all carriers*.

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[23] In this example, the price of $101 is not a monopoly price but simply the price that allocates the space to its highest-valued use. Nevertheless, there may be locations where the opportunity cost of the space used for pay telephones is zero, so that the entire payment to the site owner would reflect his locational monopoly.

[24] The value of the site to pay telephone operators could also be higher due to their ability to "produce" a large number of calls at that location at the competitive price.

Suppose, for example, that the convenience of pay telephone calling is worth only 10 cents to callers but that a charge of 35 cents is imposed on all carriers. Suppose, moreover, that the margin on additional calls to carriers exceeds 35 cents and that any carrier that blocks calls will lose those calls to carriers that do not block. In these circumstances, no carrier will choose to block. Note that this situation obtains even if the call would have been made at another time or place if all carriers had engaged in blocking.[25] In addition, of course, blocking is a crude tool for discouraging coinless calls that are worth less than their price because it also results in blocking calls for which the value of convenience exceeds the price.

We declare under penalty of perjury that the foregoing is true and correct. Executed this 4th day of September, 1998.

Stanley M. Besen

R. Craig Romaine

[25] It is textbook economics that the purchaser of an input from a monopolist will be less resistant to a price increase if that same increase is also imposed on its rivals.

APPENDIX A

Charles
River
Associates

STANLEY M. BESEN — Vice President

Ph.D.	Economics, Yale University
M.A.	Economics, Yale University
B.B.A.	Economics, City College of New York

Dr. Besen is a Vice President in CRA's Economic Litigation Program.

PROFESSIONAL EXPERIENCE

1992–present	*Vice President*, Charles River Associates, Washington, DC.
1980–1992	*Senior Economist*, The RAND Corporation, Washington, DC.
1990–1991	*Visiting Professor of Law and Economics*, Georgetown University Law Center.
1988–1989	*Visiting Henley Professor of Law and Business*, Columbia University.
1985–1988	*Co-editor*, *RAND Journal of Economics*.
1978–1980	*Co-director*, Network Inquiry Special Staff, Federal Communications Commission.
1971–1972	*Brookings Economic Policy Fellow*, Office of Telecommunications Policy, Executive Office of the President.
1965–1980	*Assistant Professor*, *Associate Professor*, *Professor of Economics*, *Allyn R. and Gladys M. Cline Professor of Economics and Finance*, Rice University.
1963–1965	*Economist*, Institute for Defense Analyses.
1962–1963	*Acting Assistant Professor of Economics*, University of California, Santa Barbara.

CONSULTANCIES

1972–1978	The RAND Corporation
1972–1977	Office of Telecommunications Policy, Executive Office of the President
1975	Texoma Regional Planning Commission
1967	Department of Defense

PROFESSIONAL ACTIVITIES/HONORS

Member, Board of Editors, *Information Economics and Policy*, 1993–present.

Member, Editorial Board, *Economics of Innovation and New Technology*, 1989–present.

Member, US National Committee on Data for Science and Technology (CODATA), National Research Council, 1993-1996.

Member, Office of Technology Assessment Advisory Panel on Communications Systems for an Information Age, 1986–1988.

Member, Regional Telecommunications Planning Advisory Committee, City of Cincinnati, 1985.

Member, Office of Technology Assessment Advisory Panel on Intellectual Property Rights in an Age of Electronics and Information, 1984–1985.

Expert, World Intellectual Property Organization/UNESCO Meeting on Unauthorized Private Copying of Recordings, Broadcasts, and Printed Matter, 1984.

Listed in *Who's Who in America*, 1982–1983, 1984–1985, 1986–1987, 1988–1989, 1990–1991, 1992–1993, 1994, 1995, 1996.

Member, Editorial Board, *Southern Economic Journal*, 1979–1981.

Member, Task Force on National Telecommunications Policy Making, Aspen Institute Program on Communications and Society, 1977.

Brookings Economic Policy Fellow, 1971–1972.

Member, Technical Advisory Committee on Business Development, Model City Program, City of Houston, 1969–1971.

Wilson University Fellow, 1959–1961.

Overbrook Fellow, 1958–1959.

Beta Gamma Sigma, 1958.

PUBLICATIONS

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Telecommunications and Information Technology Standardization in Japan: A Preliminary Survey. The RAND Corporation, N-3204-CUSJR, 1991.

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